



**NATIONAL
INSURANCE
ACADEMY**



Certificate Course in Applications of Actuarial Science in Insurance and Reinsurance Business

(Designed for the Open Market/Practical/Industry-Oriented)

COURSE OVERVIEW

The insurance industry increasingly relies on actuarial concepts for pricing, reserving, risk management, solvency, and financial reporting. However, many professionals working in insurance, finance, underwriting, operations, audit, and regulation do not have formal actuarial training.

The Certificate Course in Actuarial Applications is designed to provide insurance professionals with a structured and practical understanding of actuarial concepts applicable to both Life Insurance and General Insurance. The course bridges the gap between actuarial theory and business decision-making through intuitive explanations and applied case studies.

COURSE DURATION & STRUCTURE

Total Duration: 60 Hours

Teaching Modules:

16 Modules covering Life Insurance, General Insurance and Health Insurance including Reinsurance integrated with Case Studies & Actuarial Applications on -

- Product Development
- Pricing
- Reserving
- Solvency and Profitability decisions
- Interpretation of actuarial outputs for management
- Assignments and applied business analysis



MODE: ONLINE

Faculty: Practicing Actuaries and Industry Experts

Pedagogy:

Inputs will be delivered in English which includes

- Conceptual explanations
- Industry examples and case studies
- Simple numerical illustrations
- Interactive discussions



COURSE OBJECTIVES

- Understand core actuarial concepts used in life, general and health insurance including reinsurance
- Equip to estimate premiums, reserves, surplus, solvency margins, and profits
- Appreciate the applications of actuarial analytics on insurance business
- Understand actuarial input in regulatory and financial reporting
- Communicate effectively with actuarial teams and senior management

MODULE-WISE COURSE CONTENT (60 HOURS)

MODULE 1 (3 Hours)

Introduction to Actuarial Science & Insurance Economics

- Role of actuaries in insurance organisations
- Importance of actuarial thinking for non-actuaries
- Insurance economics and long-term risk pooling

MODULE 2 (3 Hours)

Fundamentals of Insurance Mathematics

- Risk and uncertainty in insurance
- Probability concepts used in insurance
- Law of large numbers and credibility

MODULE 3 (3 Hours)

Time Value of Money & Cash Flow Analysis

- Discounting and accumulation principles
- Present value and future value concepts
- Long-term insurance cash flows

MODULE 4 (3 Hours)

Life Insurance Products – Actuarial Perspective

- Term, Endowment, ULIP, and Annuity products
- Product cash-flow structures
- Risk sharing between insurer and policyholder

MODULE 5 (3 Hours)

General Insurance Products – Actuarial Perspective

- Process of product development in General and Health Insurance
- Motor, health, property, and liability insurance
- Frequency and severity of claims
- Underwriting and market considerations in Product Development

MODULE 6

A. Premium Principles & Pricing Fundamentals (3 Hours)

- Concept of Pricing in Life & General Insurance
- Net premium versus gross premium
- Expense loading and profit margins
- Pricing assumptions

B. Use of Distributions in Pricing (3 Hours)

MODULE 7

A. Life Insurance Pricing (3 Hours)

- Pricing of Term, Endowment, ULIP and Annuity products
- Value of New Business (VNB)
- Present Value of Profits (PVFP)

B. Life Insurance Pricing Applications (3 Hours)

Applications of Module 7(A)

MODULE 8

A. General Insurance Pricing Applications

(3 Hours)

- Retail pricing – motor and health
- Commercial pricing – property and liability
- Impact of underwriting and experience

B. Assignment on Pricing

(3 Hours)

MODULE 9

(3 Hours)

Policy Reserves & Valuation – Life Insurance

- Concept of mathematical reserves
- Valuation of Life Insurance Business and Embedded Value
- Reserve build-up and release
- Profit emergence

MODULE 10

A. Claims Reserving – General Insurance

(3 Hours)

- Premium and claims reserves
- Estimation of Claims reserve including Reserving methods & techniques used in estimates of IBNR.
- Overview of reserving approaches and other considerations

B. Assignment on Reserving

(3 Hours)

MODULE 11

(3 Hours)

Experience Analysis & Assumption Setting

- Mortality, morbidity, lapses, and expense experience
- Actual versus Expected (A/E) analysis
- Use of experience in pricing and valuation

MODULE 12

(3 Hours)

Enterprise Risk Management (ERM)

- Risk identification and measurement
- Role of actuaries in ERM
- Linkage between ERM, strategy, and capital

MODULE 13

(3 Hours)

Solvency & Capital – Life Insurance

- Regulatory solvency requirements
- Risk Based Capital (RBC) framework
- Capital adequacy

MODULE 14

(3 Hours)

Solvency, Reinsurance & CAT Risk – General Insurance

- Role of reinsurance in capital management
- Natural catastrophe (NATCAT) risk & its implications
- Solvency implications

MODULE 15

(3 Hours)

Actuarial Role in Financial Reporting

- Overview of IFRS 17 / Ind AS
- Actuarial inputs and disclosures
- Management interpretation of results

MODULE 16

(3 Hours)

Asset Liability Management & Key Risks

- Asset-liability mismatch
- Interest rate and longevity risks
- Investment considerations

ASSESSMENT AND CERTIFICATION

- Each module will be followed by an online MCQ assessment
- Participants must secure a minimum qualifying score to progress
- A comprehensive final online examination will be conducted at the end of the program
- The final assessment will include objective and application-based questions
- Participants who successfully meet the assessment criteria will be awarded a certificate

Candidate will receive a "Certificate in Actuarial Applications" from National Insurance Academy (NIA), Pune on successfully completing all the requirement of the course and passing the Final Examination by securing a minimum of 50%.

WHO SHOULD ATTEND THIS COURSE?

This course is ideal for:

Participants of India and Overseas namely

- Insurance company executives (Life, General and Health Insurance including Reinsurance)
- Actuarial, Underwriting, operations, claims professionals and Brokers
- Finance, accounts, audit and fraud investigation teams
- Risk management and compliance professionals
- Regulators and supervisory staff
- MBA / PGDM students in insurance and risk management studies
- Aspiring actuarial students seeking industry context

Eligibility:

- Graduates / Postgraduates in any discipline with 50% marks
- No actuarial or advanced mathematical background required
- Basic familiarity with insurance concepts preferred

Key Takeaways for Participants:

- Strong technical knowledge of actuarial fundamentals
- Ability to read and interpret actuarial analytical reports
- Better coordination with actuarial and other operational/technical departments.
- Enhanced decision-making from a long-term risk perspective
- Certificate from National Insurance Academy (NIA), Pune

WHY THIS COURSE?

"Because insurance decisions today demand actuarial understanding — not just intuition."

COMMENCEMENT OF COURSE

The Course will be conducted from **June 2026 to November 2026** in online mode on **MS Teams Platform**, every **Saturday from 09.30 am to 1.00pm** (2 sessions of 90 minutes each with a break of 30 minutes)

HOW TO REGISTER?

Candidates may apply and register for the course at <https://payments.niapune.org.in/>. The candidate will be directed to the payment page through the payment link. **Last date for registration is 15.05.2026**

The candidates will be emailed a link each week to participate in the session online once payment confirmation has been received.

COURSE FEES

Indian Participants	Overseas Participants
INR 70,800 (₹ 60,000/ +18% GST) (Inclusive of Examination fees)	USD 775 (Including GST) (Inclusive of Examination fees)

BANK DETAILS FOR REMITTANCE OF FEES

Account Holder	:	National Insurance Academy
Bank Name	:	Bank of Maharashtra
Branch Code	:	1121
Type of Account	:	Savings
Account Number	:	20008885848
IFSC Code (Indian Participants)	:	MAHB0001121 https://payments.niapune.org.in/
SWIFT Code (Overseas Participants)	:	MAHBINBBOCP

1. Indian participants can either pay via net banking or through the payment gateway link provided. <https://payments.niapune.org.in/>
2. Overseas participants should pay through net banking.
3. For Overseas participants - kindly add an additional amount of US \$ 8 towards SWIFT Transfer charges.

COURSE COORDINATORS

Mrs. J.Kamarunnisa & Dr. Steward Doss
Faculty Member & Course Coordinators
Email: J.kamarunnisa@niapune.org.in;
gdoss@niapune.org.in

CONTACT

Ms. Ujwala Bagwan (Manager Programme Office)
(M) +91 8308841916 (Tel.) +91-20-27204053
Email: uebagwan@niapune.org.in
Ms. Vaishnavi Dandavate (Secretary)
(Tel.) +91-20-27204062
Email: vaishnavid@niapune.org.in



ABOUT NATIONAL INSURANCE ACADEMY

The Academy is a premier institution devoted to equipping the insurance industry with the best talent. It was established in the year 1980 by the public sector insurance companies under the aegis of the Ministry of Finance, Government of India. The Academy strives to be the institute of excellence in learning and research in Insurance, Pension and allied areas.

TRAINING

The Academy has been designing, developing, and conducting innovative Management Development Programmes (MDP) for the last forty-five years, professionalizing management in India and Afro-Asian countries.

In 2024-25, NIA conducted more than 280 programmes and more than 7200 executives attended these programmes.

NIA conducts following Certification Programmes:

- Certification Course - Proficiency in Crop Insurance
- Diploma in Fire Insurance
- Certification Course in Marine Cargo Insurance
- Diploma in Reinsurance

NIA conducts customized following programmes :-

- Audit and Accounting Standards
- Digital Marketing
- Enterprise Risk Management
- Soft skill-based programmes

We can design customized programmes as per the requirement of Insurance Companies for different LOBs/areas and duration for all levels.

EDUCATION

The Post Graduate Diploma in Management (PGDM) Programme (equivalent to MBA) was started to fulfil the growing demand for skilled professionals in Insurance and Risk Management. The programme offers dual expertise in Insurance and Management, which is a blend of technical competence in insurance and creative problem-solving with managerial insights. The course is approved by the All India Council for Technical Education (AICTE) and accredited by the National Board of Accreditation (NBA).

RESEARCH & CONSULTANCY

- Life and General Insurance
- Reinsurance
- Portfolio Management
- International Regulations
- Information Technology
- Business Strategy etc.

PUBLICATIONS

The Academy promotes, develops, and fosters research and consultancy on both institutional and individual levels, and publishes BimaQuest, the Journal of Insurance, Pension, and Management (indexed in the UGC-Care list and EBSCO), as well as the students' magazine, Pravartak.



25, Balewadi, Baner Road,
NIA P.O., Pune 411045

Tel.: +91-27204100, 27204200, 27204300
Email: contactus@niapune.org.in
Web: www.niapune.org.in

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